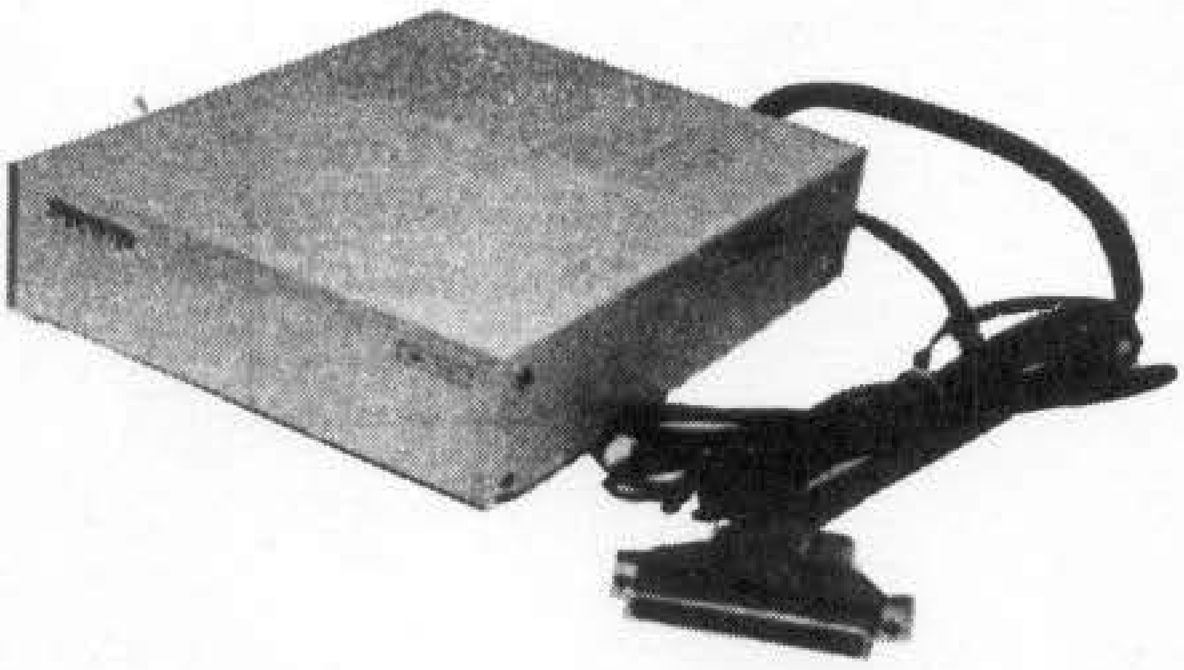
SHARP SERVICE MANUAL

CODE: 00ZMZ1U06//-E



Expansion Box

MODEL MZ-1U06

FOR MODEL MZ-700

INDEX

SHARP

1. MZ-1U06 specifications

1-1. General specification

Connector signal configuration	See the wiring diagram for detail of the bus line connection cable and the interfaing connector signal line connections.
Signal level	TTL compatible
I/O specification	The specification of IC used shall be the input and output electrical characteristics. The following ICs are used: SN74LS00, SN74LS04, SN74LS10, SN74LS14, SN74LS22, SN74LS30, SN74LS42, SN74LS244, SN74LS245
Automatic reset circuit	A reset pulse of more than 3 ms is issued at power on.
Operating temperature	0 to +50°C
Storage temperature	-15 to +70°C
Supply voltage	230 VAC $^{+34}_{-32}$ V, 50/60 Hz
Physical di dimensions	224.4 mm(W) x 264 mm(D) x 68 mm(H)

1-2. Mother board specification

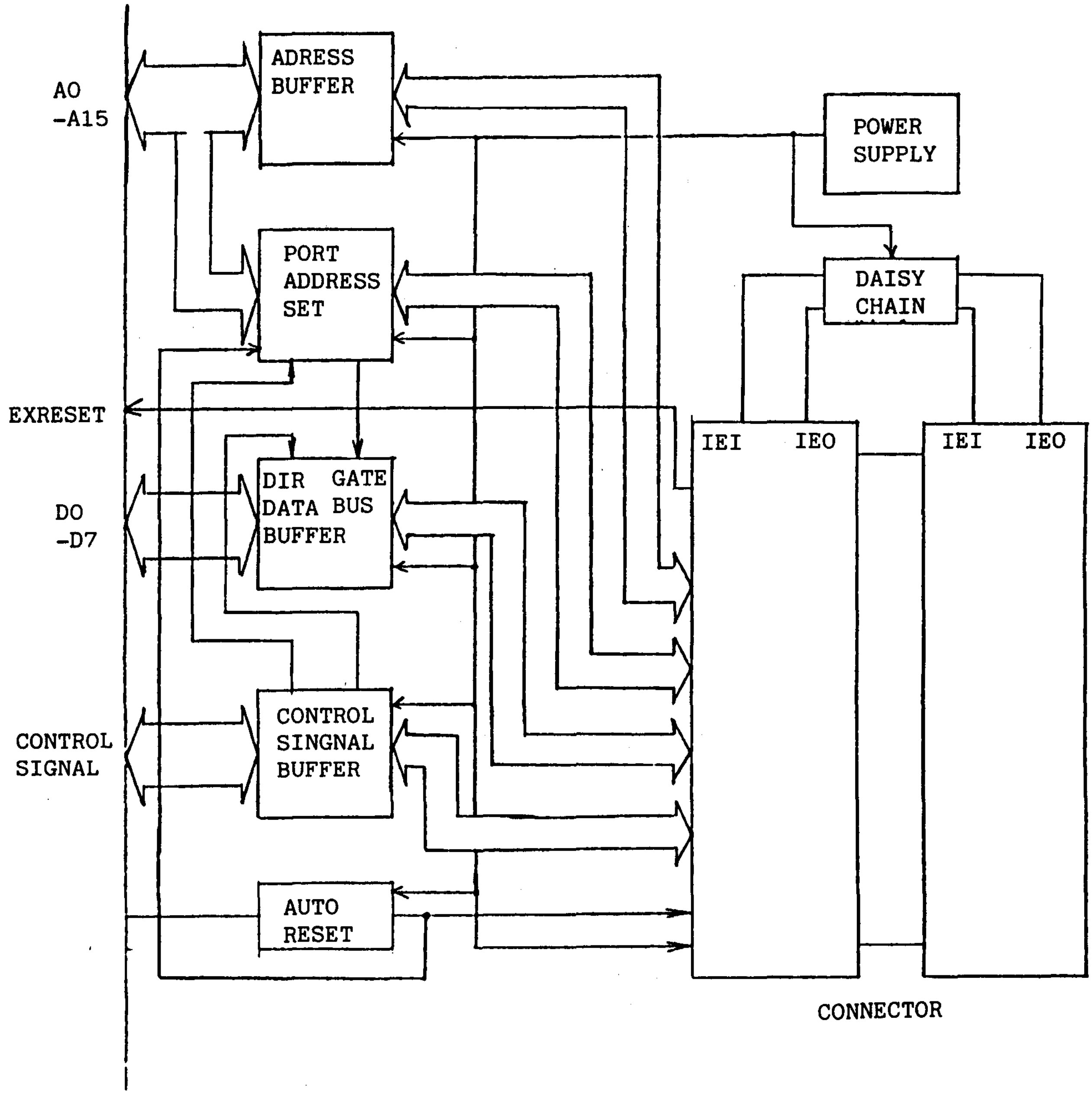
Buffer circuit
- Data bus (SN74LS245 x 1)
- Address bus (SN74LS244 x 2)
- Control bus (SN74LS244)

1-3. Power supply specification

Input voltage: 230 VAC $^{+34}_{-32}$ V, 50/60 Hz

Output voltage: 5 VDC, 2.0 A

2. Block diagram



3. Connector pin configuration

CN1

Parts side	Pin No.	Back side
Đ 0	1	GNĐ
Đ 1	2	GNĐ
Đ 2	3	GNĐ
Đ 3	4	GNĐ
Đ 4	5	GNĐ
Đ 5	6	GNĐ
Đ 6	7	GNĐ
Đ 7	8	GNĐ
BUSØ	9	GNĐ
A 0	10	$\overline{RESET}$
A 1	11	$\overline{EXRESET}$
A 2	12	$\overline{HALT}$
A 3	13	GNĐ
A 4	14	$\overline{M1}$
A 5	15	$\overline{EXWAIT}$
A 6	16	$\overline{WR}$
A 7	17	GNĐ
A 8	18	$\overline{RĐ}$
A 9	19	GNĐ
A 10	20	$\overline{IORQ}$
A 11	21	GNĐ
A 12	22	$\overline{MREQ}$
A 13	23	GNĐ
A 14	24	$\overline{INT}$
A 15	25	

CN2

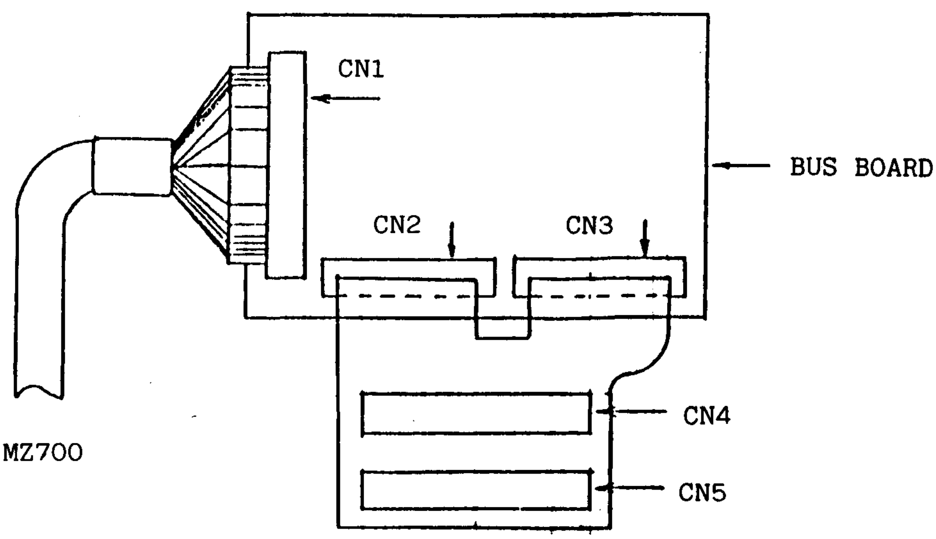
Pin No.	Back side
1	Vcc
2	Vcc
3	D2B
4	D3B
5	D1B
6	D4B
7	D0B
8	D5B
9	GND
10	D6B
11	A15B
12	D7B
13	A14B
14	BUSΦB
15	A13B
16	M1B
17	A12B
18	$\overline{WRB}$
19	A11B
20	$\overline{RĐB}$
21	A10B
22	$\overline{IORQB}$

CN3

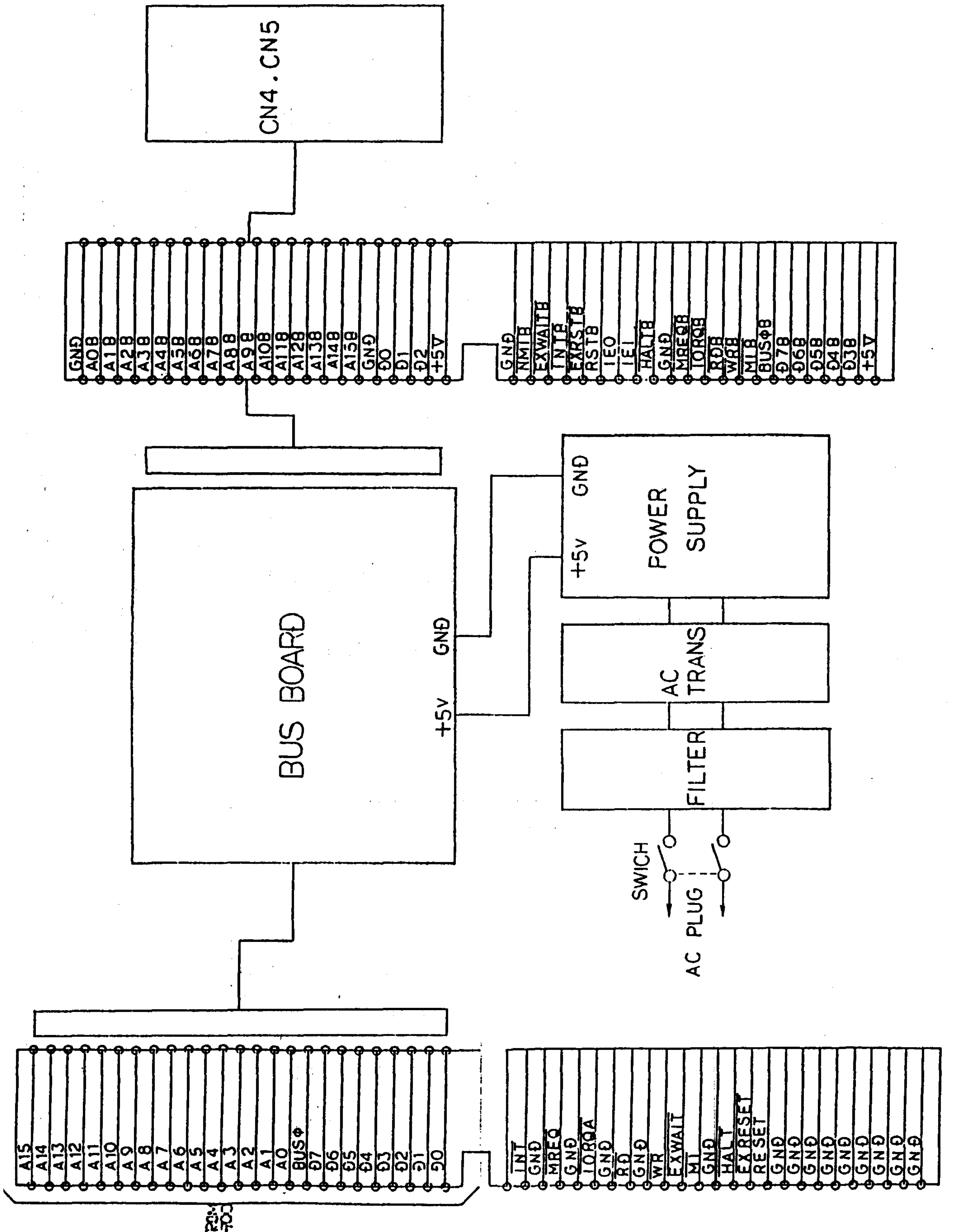
Pin No.	Back side
1	A9B
2	$\overline{MREQB}$
3	A8B
4	GNĐ
5	A7B
6	$\overline{HALTB}$
7	A6B
8	
9	$\overline{IEI}$
10	A5B
11	
12	A4B
13	$\overline{RSTB}$
14	A3B
15	$\overline{EXRSTB}$
16	A2B
17	$\overline{INTB}$
18	A1B
19	$\overline{EXWAITB}$
20	A0B
21	GNĐ
22	GNĐ

CN4 AND 5

Parts side	pin No.	back side
Vcc	1	Vcc
Đ2B	2	Đ3B
Đ1B	3	Đ4B
Đ0B	4	Đ5B
GNĐ	5	Đ6B
A15B	6	Đ7B
A14B	7	BUSØB
A13B	8	$\overline{M1B}$
A12B	9	$\overline{WRB}$
A11B	10	$\overline{RĐB}$
A10B	11	$\overline{IORQB}$
A9B	12	$\overline{MREQB}$
A8B	13	GNĐ
A7B	14	$\overline{HALTB}$
A6B	15	IEI
A5B	16	IEO
A4B	17	$\overline{RSTB}$
A3B	18	$\overline{EXRSTB}$
A2B	19	$\overline{INTB}$
A1B	20	$\overline{EXWAITB}$
A0B	21	
GND	22	GNĐ

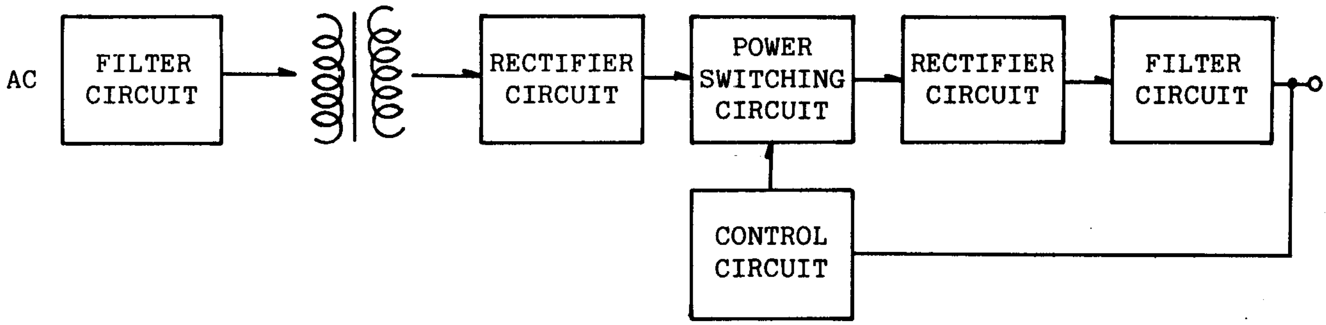


4. System boloc diagram

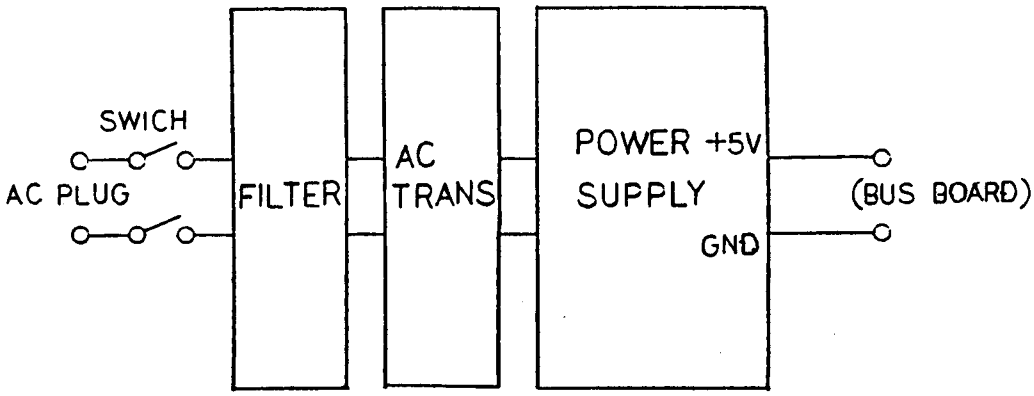


5. Power supply circuit

5-1. Power supply block diagram



5-2. Power supply section wireing



5-3. Troubleshooting the power supply unit

5-3-1. Possible phenomena

In order to know the exact point of the trouble, put power on and check the output voltage that;

1. it is at the given rating of 5V,
2. no voltage at all (OV),
3. it is about 1 to 4V only,
4. it rises to 15V, or,
5. irregular increase in output ripple.

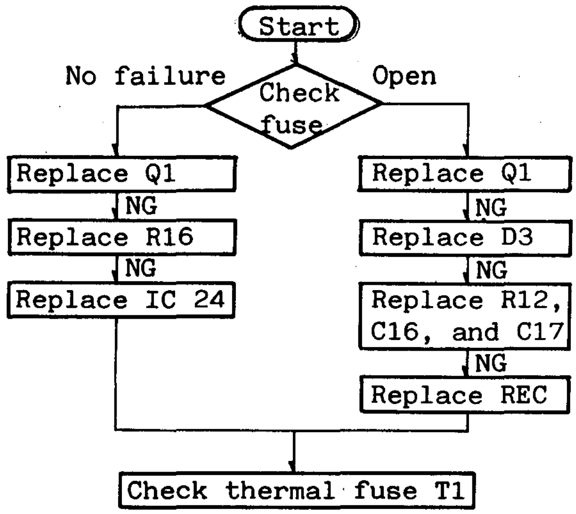
See the description below for each of phenomena above.

5-3-2. Tracking the trouble location

1. When it is at the given rating of 5V

If a voltage drop occurs with the Bus Board in connection, though the normal condition is seen when a 2.5A load (2 ohms, 20W ceramic resistor or electronic load device) is connected to the power supply, it is because that the circuit load is higher than 3A and more. In this case, check the Bus Board and the circuits connected to it.

2. When no output voltage is seen (0V)



1) Open fuse F1

2) Defective Q1

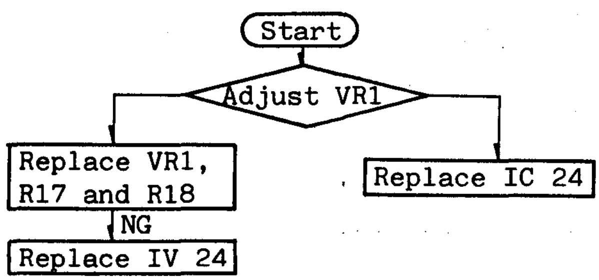
3) Defective R16

4) Defective IC 24

5) Defective thermal fuse T1

Replace the above components in reference with the figure to check the defective component.

3. When the output is 1 to 4.5V



Replace component in reference with the figure to check the defective item.

4. It rises to 15V

Replace Q1 with the new one when this conditions is encountered because Q1 is shorted in this case. If it remains the same after the replacement, remove the cause that makes Q1 destructed and replace the following component in the given order to check the item causing the trouble.

R11 and R12.....if still stays the same.....D3, C17, and R13.....if still stays the same.....then IC 24.

5. Irregular increase seen in the output ripple

Replace C17 as it might have been fatigued.

5-4. Tools required for the tests

1) Oscilloscope

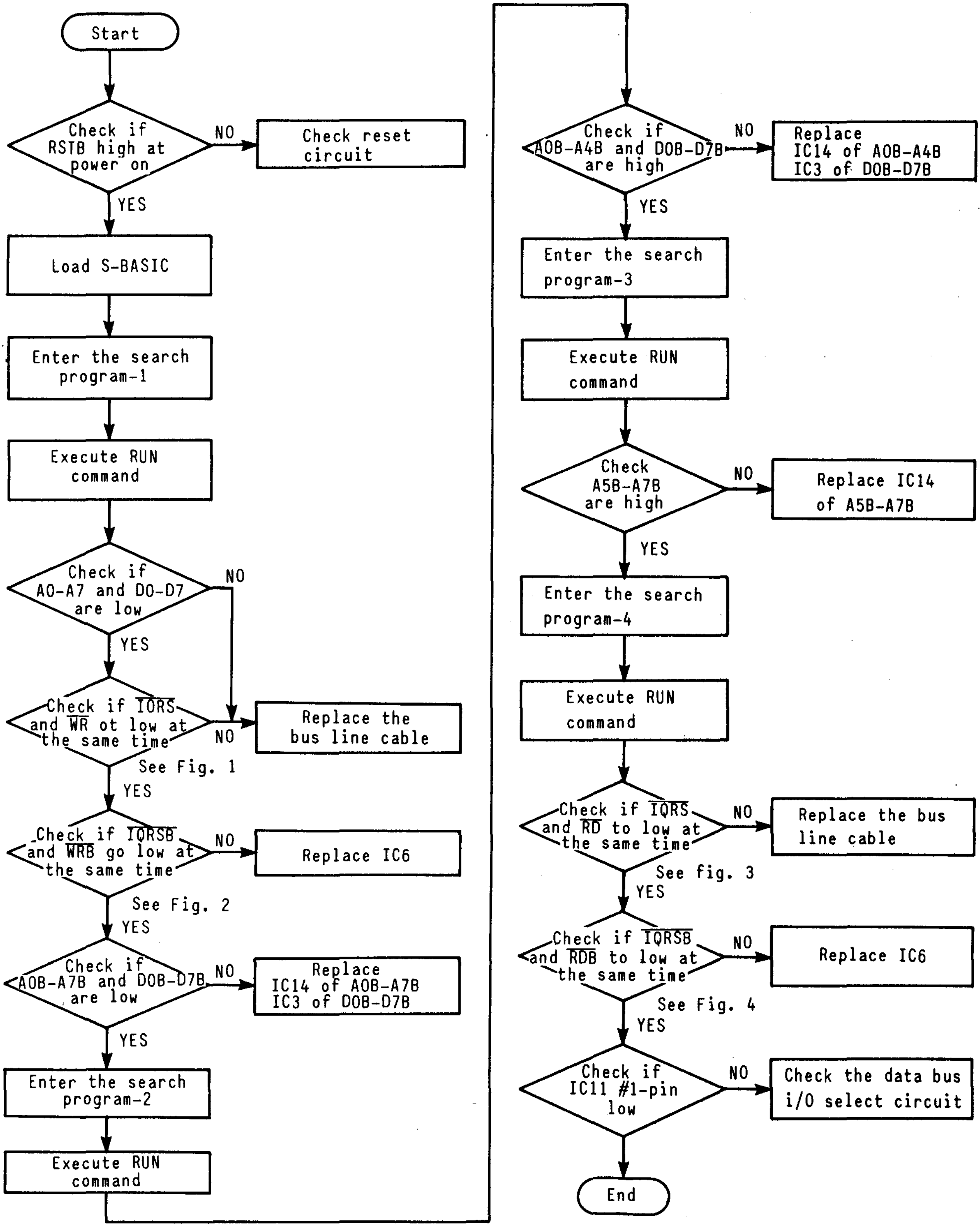
2) Voltmeter or multimeter (digital multimeter is preferable)

3) A 5V, 2.5A load like the electronic load device or 2 ohms resistor of more than 20W.

6. Trouble shooting

Mother Board section

6-1. Troubleshooting procedure



Search program-1

C000	3E
C001	00
C002	D3
C003	00
C004	C3
C005	02
C006	C0

Search program-2

C000	3E
C001	FF
C002	D3
C003	31
C004	C3
C005	02
C006	C0

Search program-3

C000	3E
C001	FF
C002	D3
C003	FE
C004	C3
C005	02
C006	C0

Search program-4

C000	3E
C001	00
C002	DB
C003	00
C004	C3
C005	02
C006	C0

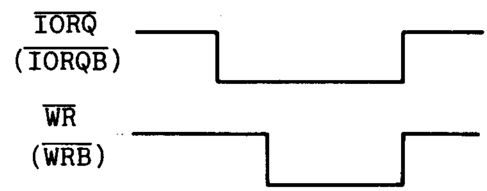
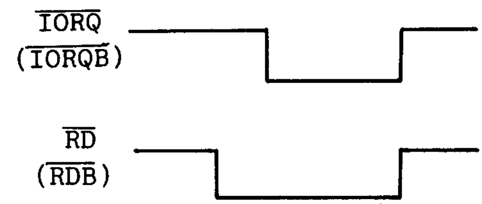


Fig. 1 (Fig. 2)



6-2. IC circuit check method

1) Press the IC insulator with your fingertip and check the following:

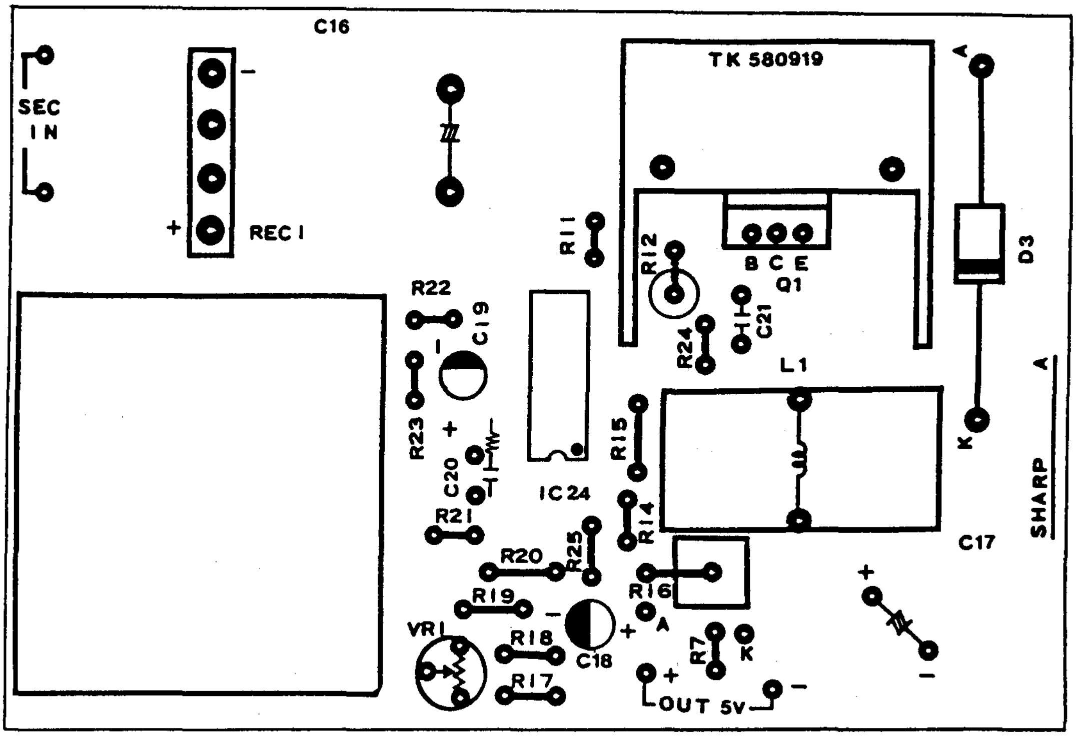
   *see if too hot-----IC gate defect or short in the circuit.
   *see if any condition changes-----improper soldering or printed wire.

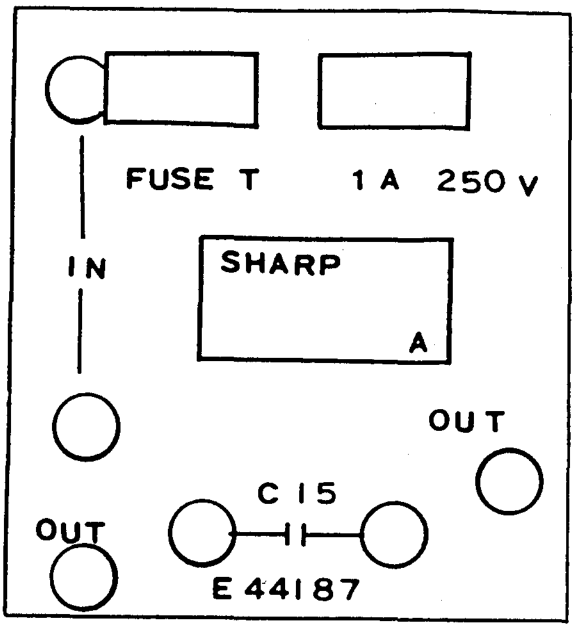
2) Check the following defects using the oscilloscope;

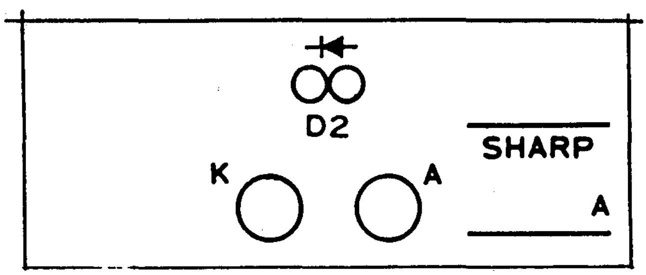
   *TTL IC logic does not match-----IC gate failure
   *see if the TTL IC voltage is within the TTL level.

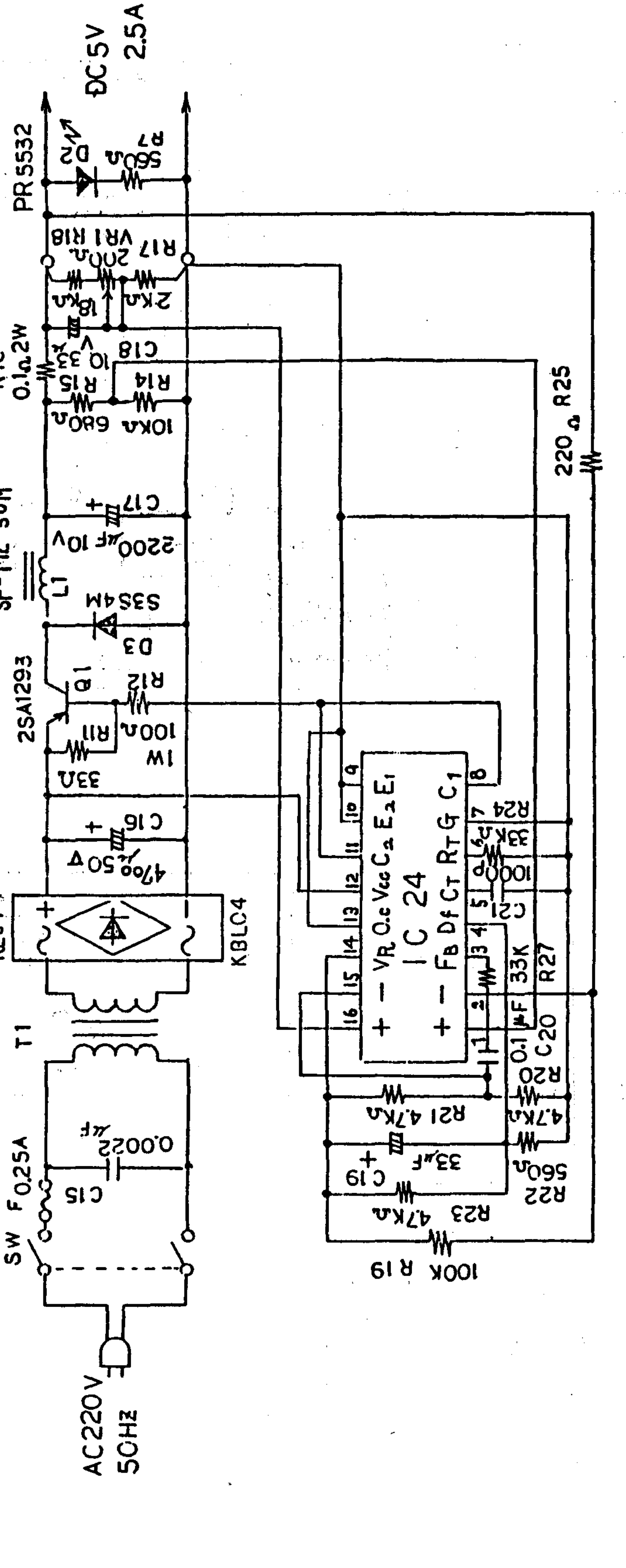
   NOTE: TTL high level: 2.5V or more
   TTL low level: 0.5V or less

7. Circuit diagram ans parts layout

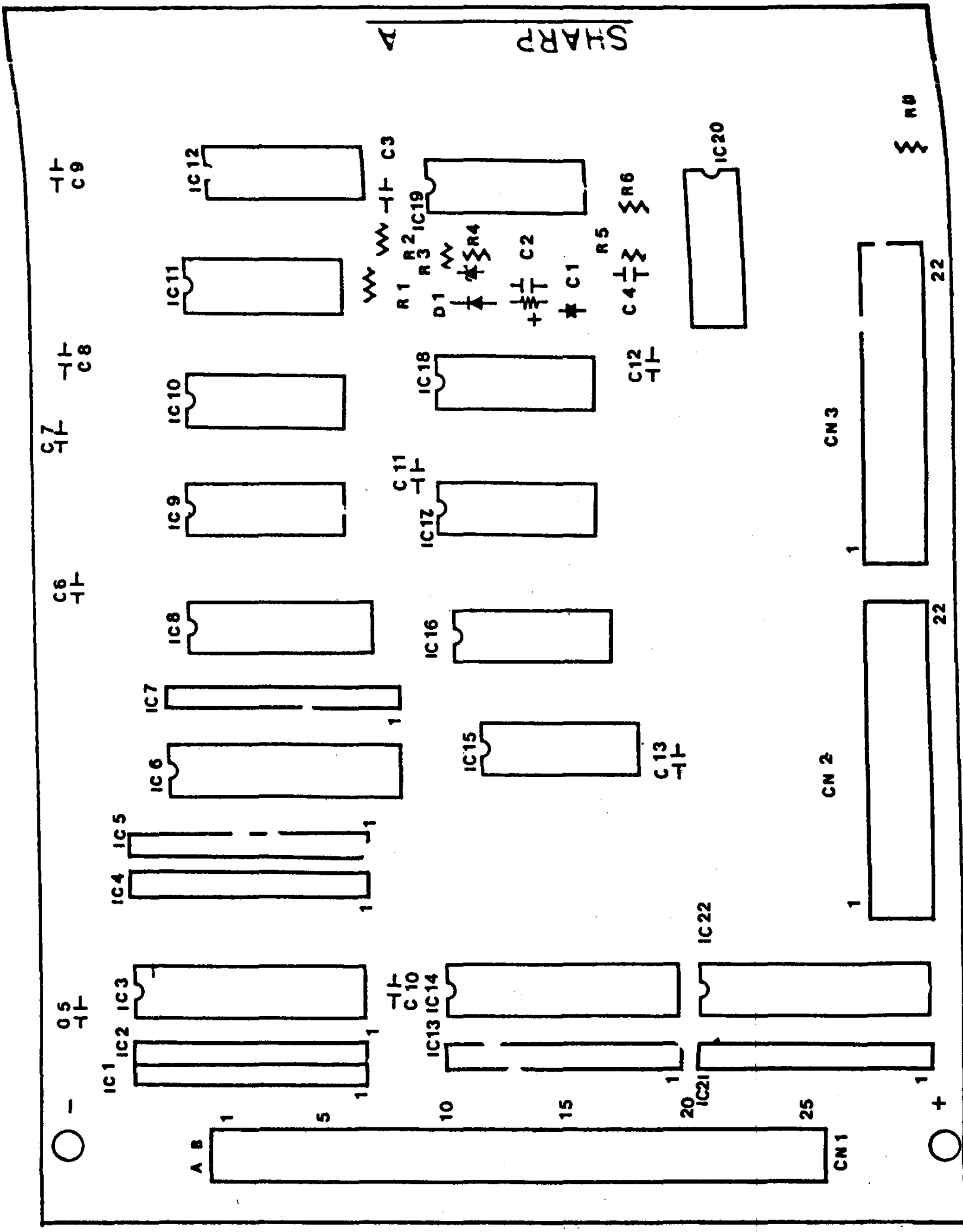


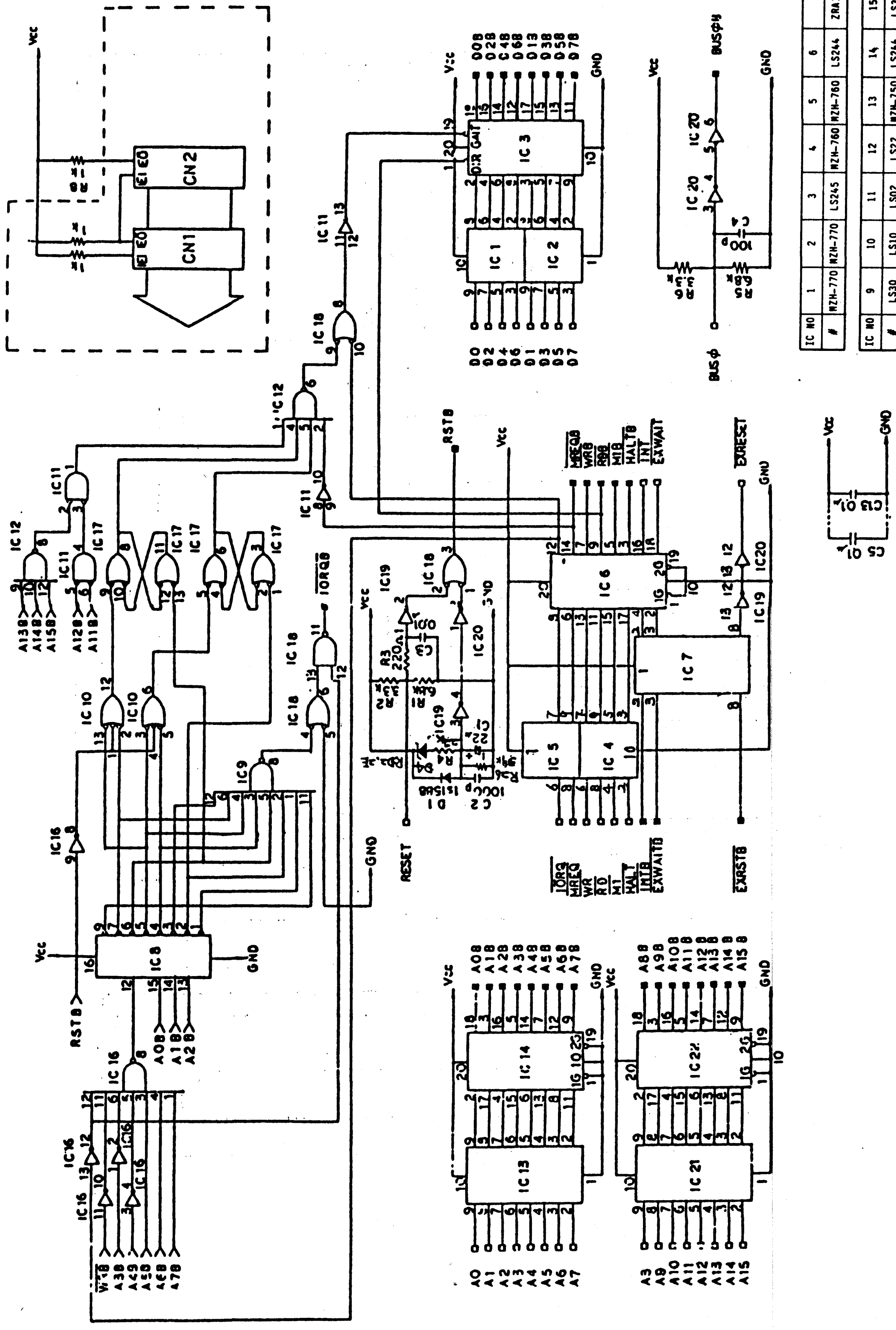






DC 5V
2.5A
PR5532
D2
R7
560Ω
R18
VR1
R17
200Ω
18kΩ
2kΩ
R16
0.1Ω 2W
C18
R15
680Ω
R14
10KΩ
220Ω R25
C17
2200μF 10V
SF-T12-50M
L1
S3S4M
D3
2SA1293
Q1
R12
R11
100Ω
1W
33Ω
C16
4700μ 50V
REC1
KBLC4
T1
IC 24
F 0.25A
C15
0.0022μF
SW
AC220V
50Hz
R21 4.7kΩ
C19
33μF
R23 4.7kΩ
100K R19
R22
560Ω
R20
4.7kΩ
C20
0.1μF
33K
R27
R24
33K
C21


SHARP
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
IC19
IC20
IC21
IC22
CN1
CN2
CN3
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
R1
R2
R3
R4
R5
R6
D1

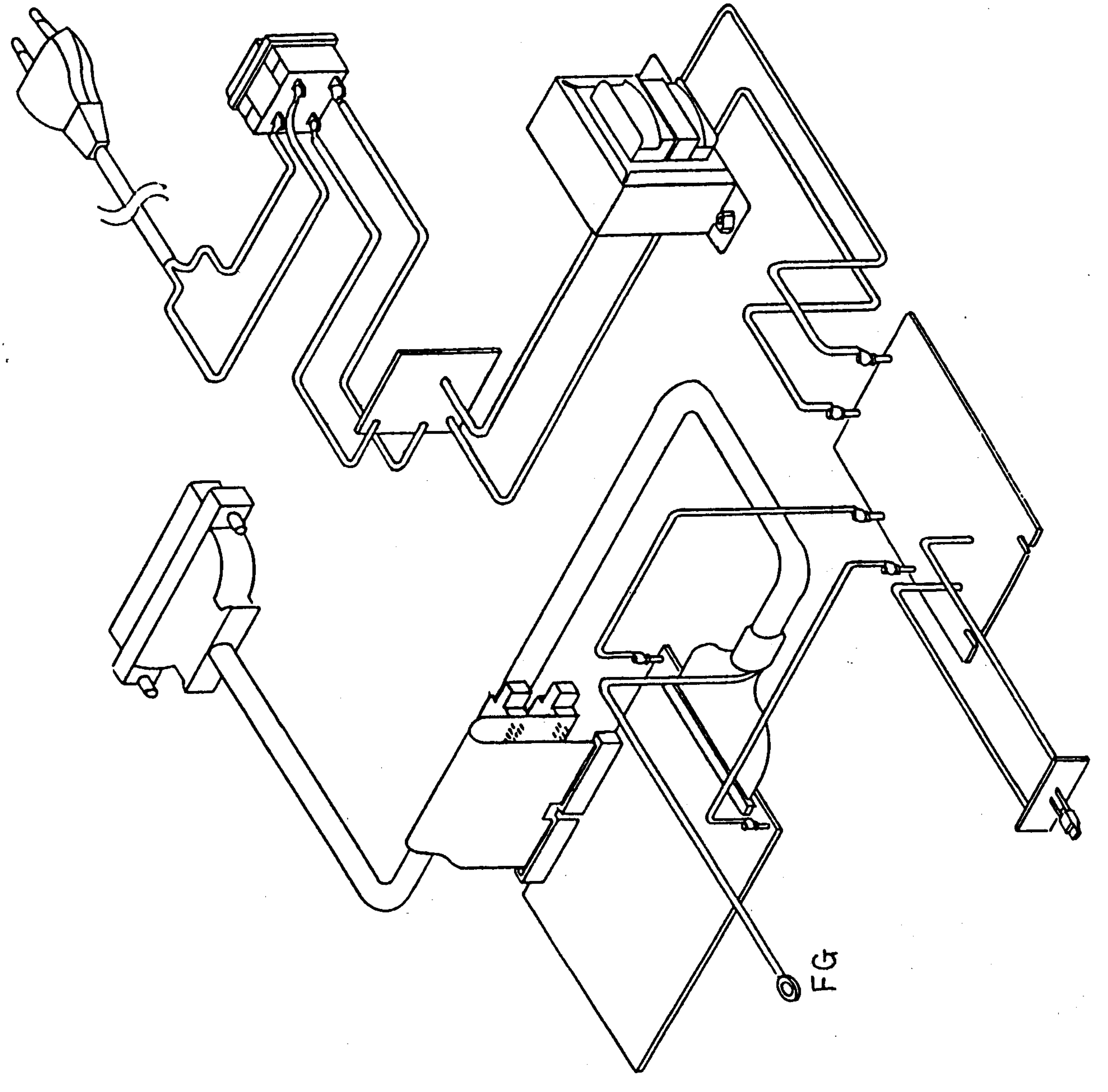


IC NO	1	2	3	4	5	6	7	8
#	MZH-770	MZH-770	LS245	MZH-760	MZH-760	LS244	ZRA1/8W8RA22J	LS42

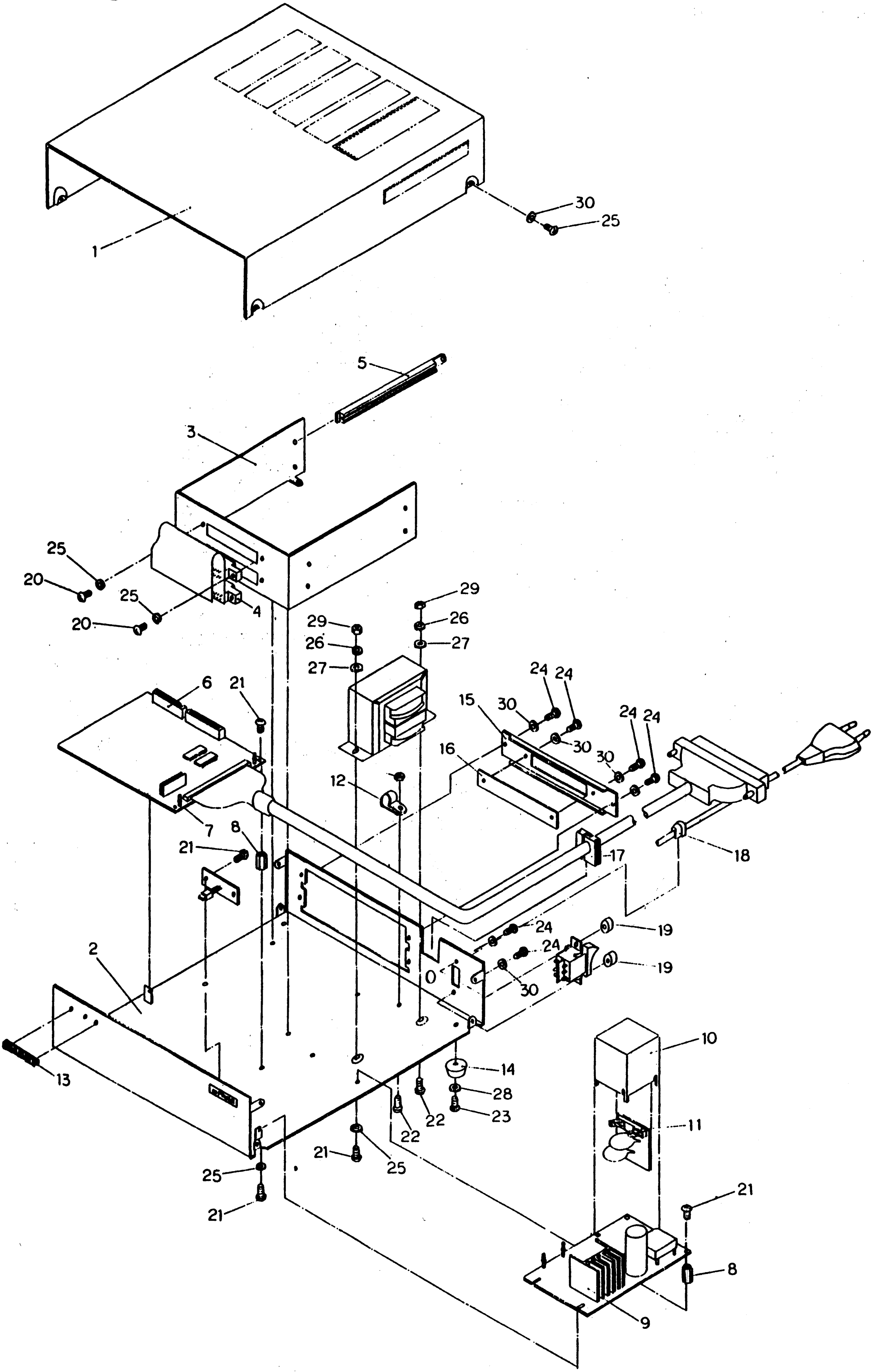
IC NO	9	10	11	12	13	14	15
#	LS30	LS10	LS02	LS22	MZH-750	LS244	LS30

IC NO	16	17	18	19	20	21	22	24
#	LS04	LS00	LS00	LS14	LS04	MZH-750	LS244	MB3759

8. Actual wiring diagram



9. Parts guide & list



1 Electronics parts

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	0CF95-1351-A/	AN	N	C	Coil	[L1]
2	0CF95-0401-A/	BC	N	B	Power transformer	[T1]
3	0CF95-2202-C/	AP	N	B	Rectifire	[REC1]
4	VRD-ST2EY221J	AA		C	Resistor	[R3]
5	VRD-ST2EY102J	AA		C	Resistor	[R8]
6	VRD-ST2EY332J	AA		C	Resistor	[R2,R6]
7	VRD-ST2EY682J	AA		C	Resistor	[R1,R5]
8	VRD-ST2EY223J	AA		C	Resistor	[R4]
9	VRD-ST2EY330J	AA		C	Resistor	[R11]
10	VRD-ST2EY103J	AA		C	Resistor	[R14]
11	VRD-ST2EY221J	AA		C	Resistor	[R25]
12	VRD-ST2EY561J	AA		C	Resistor	[R7,R22]
13	VRD-ST2EY681J	AA		C	Resistor	[R15]
14	VRD-ST2EY182J	AA		C	Resistor	[R18]
15	VRD-ST2EY202J	AA		C	Resistor	[R17]
16	VRD-ST2EY472J	AA		C	Resistor	[R20,R21,R23]
17	VRD-ST2EY333J	AA		C	Resistor	[R24]
18	VRD-ST2EY104J	AA		C	Resistor	[R19]
19	VRS-PT3AB101J	AB		C	Metal oxide resistor	[R12]
20	0CF95-3101-A/	AE	N	C	Cement resistor	[R16]
21	0CF95-3251-A/	AC	N	C	Variable resistor	[VR1]
22	0CF95-2001-A/	AL	N	B	Transistor	[Q1]
23	0CF95-2301-A/	AP	N	B	Diode	[D3]
24	VHDDS1588L2-1	AB		B	Diode	[D1]
25	0CF95-2302-A/	AC	N	B	Diode	[D4]
26	0CF95-2619-O/	AU	N	C	Capacitor	[C16]
27	0CF95-2609-M/	AQ	N	C	Capacitor	[C17]
28	0CF95-2808-T/	AC	N	C	Capacitor	[C1]
29	0CF95-2609-A/	AC	N	C	Capacitor	[C19]
30	0CF95-2701-A/	AB	N	C	Polyester capacitor	[C21]
31	0CF95-2807-C/	AD	N	C	Capacitor	[C15]
32	0CF95-2809-M/	AB	N	C	Capacitor	[C2]
33	0CF95-2615-G/	AA	N	C	Capacitor	[C3]
34	0CF95-2810-U/	AB	N	C	Capacitor	[C4]
35	0CF95-2811-D/	AC	N	C	Capacitor	[C5~C13,C20]
36	0AE30276973//	AN	N	B	IC	[IC24]
37	VHiSN74LS00-1	AE		B	IC	[IC17,IC18]
38	VHiSN74LS02-1	AE		B	IC	[IC11]
39	VHiSN74LS04-1	AE		B	IC	[IC16,IC20]
40	VHiSN74LS10-1	AE		B	IC	[IC10]
41	VHiSN74LS14-1	AM		B	IC	[IC19]
42	VHiSN74LS22-1	AG		B	IC	[IC12]
43	VHiSN74LS30-1	AE		B	IC	[IC9,IC15]
44	VHiSN74LS244N	AS		B	IC	[IC6,IC14,IC22]
45	VHiSN74LS245N	AR		B	IC	[IC3]
46	VHiSN74LS42-1	AM		B	IC	[IC8]
47	0CF95-1902-A/	AT	N	B	IC	[IC13,IC21]
48	0CF95-1902-B/	AR	N	B	IC	[IC4,IC5]
49	0CF95-1902-C/	AP	N	B	IC	[IC1,IC2]
50	0CF95-1902-D/	AE	N	B	IC	[IC7]
51	0CF95-2401-A/	AE	N	B	LED	[D2]
52	0CF95-4502-A/	AG	N	A	Fuse for UK	[FURS]
	0CF95-4502-B/	AF	N	A	Fuse for 220V	[FURS]
53	0CF95-4506-A/	AR	N	B		[SW]
54	0CF95-3903-A/	AP	N	C	AC cord for UK	
	0CF95-4504-A/	AQ	N	C	AC cord for 220V	
55	0CF95-4505-A/	BS	N	C	I/O Cable	
56	0CF95-4105-A/	AV	N	C	Flexible board	

2 Mechanical parts

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	0CF95-4025-A/	BC	N	D	Cabinet Top
2	0CF95-4024-A/	BB	N	D	Chassis
3	0CF95-4026-A/	AP	N	D	PWB Guide angle
4	0CF95-3502-A/	AU	N	C	Connector for I/F slot
5	0CF95-4018-A/	AH	N	D	Guide rail for PWB
6	0CF95-3501-A/	AQ	N	C	Connector for flexible cable
7	0CF95-4010-A/	AB	N	C	Pin
8	0CF95-4034-A/	AC	N	D	Spacer for PWB
9	0CF95-4021-A/	AK	N	D	Heat sink
10	0CF95-4027-A/	AE	N	D	Shield box for Power sup PRI.PWB
11	0CF95-4507-A/	AA	N	C	Fuse holder
12	0CF95-4037-A/	AE	N	C	I/O Cable Tie-wrap
13	0CF95-4004-A/	AE	N	D	Badge (SHARP)
14	0CF95-4003-A/	AC	N	C	Leg
15	0CF95-4023-A/	AG	N	D	Masking frame for I/O slot
16	0CF95-4019-A/	AF	N	D	Masking cover for I/O slot
17	0CF95-4006-A/	AC	N	D	Bushing for I/O cable
18	0CF95-4030-A/	AK	N	D	Bushing for AC cord
19	0CF95-4031-B/	AC	N	D	Spacer for AC SW
20	XBPSD30P10000	AA		C	Screw (M3×10)
21	0CF95-4012-A/	AA	N	C	Screw (M3×5)
22	XBPSD40P08000	AA		C	Screw (M4×8)
23	XBPSD26P06000	AA		C	Screw (M26×6)
24	0CF95-4011-A/	AA	N	C	Screw (M3×5)
25	XWSSD30-07000	AA		C	Spring washer (M3)
26	XWSSD40-07000	AA		C	Spring washer (M4)
27	XWHSD40-08000	AA		C	Washer (M4)
28	XWHSD26-05000	AA		C	Washer
29	0CF95-4013-A/	AA	N	C	Nut (M4)
30	0CF95-4016-A/	AA	N	C	Nylon washer (M3)
31	XBPSD30P10000	AA		C	Screw (M3×10)

3 Other

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	0CF95-9001-i/	AR	N	D	Instruction manual
2	0CF95-5003-A/	AC	N	D	Caution label (Inst.Book)
3	0CF95-5004-A/	AC	N	D	Caution label (AC cord)